

Solving Rational Inequalities (9-6)

1. State excluded values (what makes denom = 0)
2. Solve related equation
3. Use number line and test regions

Ex:

$$\frac{1}{4a} + \frac{5}{8a} > \frac{1}{2}$$

LCM = 8a

$$2. \quad 8a \left(\frac{1}{4a} + \frac{5}{8a} \right) = \left(\frac{1}{2} \right) 8a$$

$$\frac{8a}{4a} \cdot \frac{1}{2} + \frac{8a}{8a} \cdot 5 = \frac{8a}{2}$$

$$2 + 5 = 4a$$

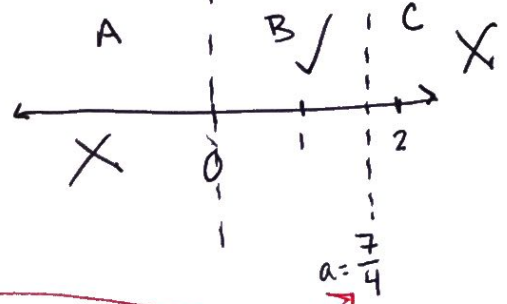
$$\frac{7}{4} = \frac{4a}{4}$$

$$a = \frac{7}{4} = 1.75$$

1. $a=0$ excluded

$$0 < a < \frac{7}{4}$$

3.



Test A
test $a = -1$

$$\frac{1}{4(-1)} + \frac{5}{8(-1)} > \frac{1}{2}$$

$$-\frac{1}{4} - \frac{5}{8} > \frac{1}{2}$$

no

Test B
test $a = 1$

$$\frac{1}{4} + \frac{5}{8} > \frac{1}{2}$$

$$\frac{7}{8} > \frac{1}{2}$$

yes

Test C
 $a = 2$

$$\frac{1}{4(2)} + \frac{5}{8(2)} > \frac{1}{2}$$

$$\frac{1}{8} + \frac{5}{16} > \frac{1}{2}$$

$$\frac{7}{16} > \frac{1}{2}$$

no

You try:

1) $\frac{4}{c+2} > 1$

2) $\frac{1}{3v} + \frac{1}{4v} < \frac{1}{2}$